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The pilot studies of the pneumatic robot control system with use of the electric step motor drive crane distributor

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Abstract

© 2016,International Journal of Pharmacy and Technology. All rights reserved.The pilot studies of a control system of the pneumatic robot with use of the crane distributor with the drive from the step electric step motor are conducted. The natural model of a crane pneumatic distributor with the drive from the electric step motor is created and tested. Tests confirmed operability of model; the pilot unit on the basis of the pneumatic FGM-9C robot with application of the offered control system is developed,and the pilot studies of its dynamic characteristics are conducted; the error of positioning of an action of the robot at operating load 0,1kg made ~ 0,14 mm (or 0,11%) at a fiducial probability 0,993. The comparative research with the existing analog which showed is conducted that,when using of the offered control system and depending on the given program of work,quick action at achievement of terminating provisions of output links of the robot increases,adjustment of speed,and also positioning of an action of the robot in the intermediate provisions due to program control by the step engine is possible; it is established that quick action of the offered control system is 16,7% higher in comparison with system with use of the next analog. Results of the pilot studies testify to improvement of quality indicators of control of the pneumatic robot,namely accuracy of positioning with preservation of high quick action.

Keywords

Accuracy of positioning, Control system, Crane pneumatic distributor, Electric step motor, Pneumatic robot, Quick action